## CLAIM AMENDMENTS

1. *(Original)* A method for producing a compound that regulates telomerase activity, comprising:

a) obtaining a preparation of mammalian telomerase enzyme that is at least ~2000-fold more pure than an extract of cells from adenovirus-transformed kidney cell line (293 cells), wherein the telomerase enzyme contains telomerase RNA component, and has a molecular weight of 200-2000 kDa;

b) combining the preparation with a test compound;

c) determining telomerase activity of the enzyme in the presence of the test compound;

d) identifying the compound as being a regulator of telomerase if the telomerase activity measured in step c) is affected by the presence of the compound; and then

e) producing the compound if it is identified as being a regulator of telomerase in step d).

2. *(Original)* A method for producing a compound that regulates telomerase activity, comprising:

a) identifying the compound as being a regulator of telomerase; and then

b) producing the compound if it is identified as being a regulator of telomerase in step a);

wherein the compound has been identified as a regulator of telomerase by a process comprising:

i) obtaining a preparation of mammalian telomerase enzyme that is at least ~2000-fold more pure than an extract of cells from adenovirus-transformed kidney cell line (293 cells), wherein the telomerase enzyme contains telomerase RNA component, and has a molecular weight of 200-2000 kDa;

ii) combining the preparation with a test compound;

iii) determining telomerase activity of the enzyme in the presence of the test compound;

iv) identifying the compound as being a regulator of telomerase if the telomerase activity measured in step iii) is affected by the presence of the compound.

3. *(Original)* The method of claim 1 or claim 2, wherein the telomerase preparation was obtained by a process in which a solution containing telomerase activity was combined with an oligonucleotide having specific activity for mammalian telomerase; and then protein was collected that had bound the oligonucleotide.

4. *(Original)* The method of claim 3, wherein the oligonucleotide comprises a retrievable label such as biotin.



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5. *(Original)* The method of claim 3, wherein the solution that was combined with the oligonucleotide had been obtained by preparing an enriched solution from a cell expressing telomerase, whereby telomerase enzyme in the enriched solution was separated from other proteins expressed by the cell.

6. *(Original)* The method of claim 1 or claim 2, wherein the process used to prepare the telomerase comprised combining a fraction containing telomerase enzyme with an anion exchange matrix, and collecting protein that bound the matrix.

7. *(Original)* The method of claim 1 or claim 2, wherein the process used to prepare the telomerase comprised combining a fraction containing telomerase enzyme with a cation exchange matrix (such as a heparin matrix), and collecting protein that bound the matrix.

8. *(Original)* The method of claim 1 or claim 2, wherein the process used to prepare the telomerase comprised combining a fraction containing telomerase enzyme with an intermediate selectivity matrix, and collecting protein that bound the matrix; wherein the intermediate selectivity matrix had at least one of the following substituents: hydroxyapatite, a polyamine (such as spermine or spermidine), poly guanylic acid, a divalent metal ion (such as $Ni^{++}$), a positively charged poly-amino acid (such as poly-L-lysine), a positively charged enzyme (such as histone), or aminophenyl-boronic acid.

9. *(Original)* The method of claim 1 or claim 2, wherein the process used to prepare the telomerase comprised separating a fraction containing the telomerase enzyme by gel filtration chromatography or gradient centrifugation that separates molecules > 200 kDa.

10. *(Original)* The method of claim 3, wherein the oligonucleotide contains a sequence that binds specifically to telomerase RNA component.

11. *(Original)* The method of claim 10, wherein the oligonucleotide contains the sequence of oligo 5 (SEQ. ID NO:3).

12. *(Original)* The method of claim 3, wherein the oligonucleotide contains a sequence that is specifically recognized by telomerase protein.

13. *(Original)* The method of claim 12, wherein the oligonucleotide contains the sequence $(TTAGGG)_3$ (SEQ. ID NO:6).



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14. *(Original)* The method of claim 12, wherein the oligonucleotide does not contain the sequence $(TTAGGG)_3$ (SEQ. ID NO:6).

15. *(Original)* The method of claim 12, wherein the oligonucleotide contains the sequence of M2/TS (SEQ. ID NO:8).

16. *(Original)* The method of claim 12, wherein the telomerase preparation is at least ~20,000 fold more pure than the cell extract.

17. *(Original)* The method of claim 1 or claim 2, wherein the telomerase preparation is between ~3,000 and ~60,000 fold more pure than the cell extract.

18. *(Original)* The method of claim 1 or claim 2, wherein the telomerase protein is human.

19. *(Original)* The method of claim 1 or claim 2, wherein the telomerase preparation has measurable telomerase activity in 0.2 µg of protein when quantified in a telomere primer elongation assay in which $^{32}P$-labeled primer extensions are separated on a gel and detected using a phosphoimager screen.

20. *(Currently amended)* The method of claim 1 or claim 2, wherein ~~telomerase core enzyme~~ the telomerase enzyme is present in the preparation at a concentration of at least $3 \times 10^{-10}$ mol $L^{-1}$.

21. *(Currently amended)* The method of claim 1 or claim 2, wherein ~~telomerase core enzyme~~ the telomerase enzyme is present in the preparation at a concentration of at least $2 \times 10^{-9}$ mol $L^{-1}$.

22. *(Original)* The method of claim 1 or claim 2, wherein the telomerase activity is determined by a primer elongation assay.

23. *(Original)* The method of claim 1 or claim 2, wherein the telomerase activity is determined in by a dot blot assay.

24. *(Original)* The method of claim 1 or claim 2, whereby the compound is identified as being an inhibitor of telomerase.

25. *(Original)* The method of claim 1 or claim 2, whereby the compound is identified as being an activator of telomerase.



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